SHARP

ENGLISH

SCIENTIFIC CALCULATOR

MODEL **EL-546LV**

OPERATION MANUAL

PRINTED IN CHINA
02LGK (TINSE0587EHZZ)

INTRODUCTION

After reading this manual, store it in a convenient location for future reference.

Operational Notes

To ensure trouble-free operation, observe the following points:

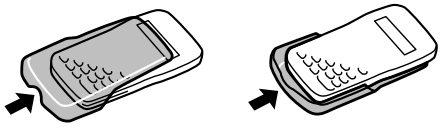
1. Do not carry the calculator in the back pocket of slacks or trousers.
2. Do not subject the calculator to extreme temperatures.
3. Do not drop it or apply excessive force.
4. Clean only with a soft, dry cloth.
5. Do not use or store the calculator where fluids can splash onto it.

SHARP will not be liable nor responsible for any incidental or consequential economic or property damage caused by misuse and/or malfunctions of this product and its peripherals, unless such liability is acknowledged by law.

- Press the RESET switch only in the following cases:
  - When using for the first time
  - After replacing the batteries
  - To clear all memory contents
  - When an abnormal condition occurs and all keys are inoperative.

If service should be required on this calculator, use only a SHARP servicing dealer, SHARP approved service facility, or SHARP repair service where available.

Hard Case



DISPLAY

(All symbols will not be displayed simultaneously, as shown above.)

←/→ : Appears when the entire equation cannot be displayed. Press [◀]/[▶] to see the remaining (hidden) section.

xyrθ : Indicates the mode of expression of results in the complex calculation mode.

2ndF : Appears when [2ndF] is pressed, indicating that the functions shown in orange are enabled.

HYP : Indicates that [hyp] has been pressed, and the hyperbolic functions are enabled. If [2ndF] [arc hyp] are pressed, the symbols **"2ndF HYP"** should appear, indicating that inverse hyperbolic functions are enabled.

ALPHA : Indicates that [2ndF] [ALPHA] or [STO] ([RCL]) has been pressed, and entry (recalling) of memory contents and recalling of statistics can be performed.

FIX/SCI/ENG: Indicates the notation used to display a value and changes each time [2ndF] [FSE] are pressed.

DEG/RAD/GRAD: Indicates angular units and changes each time [DRG] is pressed.

ALGB : Appears when a simulation calculation is executed.

M : Indicates that a numerical value is stored in the independent memory.

▬ : Indicates the operation mode.

? : Indicates that the calculator waits for a numerical value entry, such as during simulation calculation.

∠ : Appears when the calculator shows an angle as the result in the complex calculation mode.

i : Indicates an imaginary number is being displayed in the complex calculation mode.

BEFORE USING THE CALCULATOR

Key Notation Used in this Manual

In this manual, key operations are described as follows:

e^x ^{x}E [ln]

To specify e^x : [2ndF] [e^x]
To specify E (HEX) : E
To specify ln : [ln]
To specify X : [2ndF] [ALPHA] [x]

To access functions printed in orange above the key, press [2ndF] first.
Numbers are not shown as keys, but as ordinary numbers.

Power On and Off

Press [ON/C] to turn the calculator on, and [2ndF] [OFF] to turn it off.

Clearing Methods

There are three clearing methods as follows:

Clearing operation	Entry (Display)	M*1	A-D, X,Y*2 STAT, ANS
[ON/C]	○	×	×
[2ndF] [CA]	○	×	○
RESET	○	○	○

○ : Clear × : Retain

*1 Independent memory M.

*2 Temporary memories A-D, X and Y, statistical data, and last answer memory.

Refer to the Memory Calculations section.

Editing the Equation

- Press [◀] or [▶] to move the cursor.
  To return to the equation after getting an answer, press [2ndF] [↻].
- To delete a number, move the cursor to the number to be deleted, then press [DEL].
  The number under the cursor will be deleted.
- To insert a number, move the cursor to the place immediately after where the number is to be inserted, then enter the number.

Priority Levels in Calculation

This calculator performs operations according to the following priority:

① ∠
② Functions preceded by their argument (x^{-1}, x^2, n!, etc.)
③ Y^x, $\sqrt[x]{}$
④ Implied multiplication of a memory value (2Y, etc.)
⑤ Functions followed by their argument (sin, cos, etc.)
⑥ Implied multiplication of a function (2sin30, etc.)
⑦ ${}_nC_r$, ${}_nP_r$
⑧ ×, ÷
⑨ +, −
⑩ AND
⑪ OR, XOR, XNOR
⑫ =, M+, M−, ⇒M, ▶DEG, ▶RAD, ▶GRAD, DATA, CD, →rθ, →xy and other calculation ending instruction

- If parentheses are used, parenthesized calculations have precedence over any other calculations.

INITIAL SETUP

Mode Selection

Normal mode: [MODE] [0]
Used to perform arithmetic operations and function calculations.
The pointer "▬" appears below "0: NORMAL".

Complex number mode: [MODE] [1]
Used to perform arithmetic operations with complex numbers.
The pointer "▬" appears below "1: CPLX".

3-VLE mode : [MODE] [2]
Used to perform simultaneous linear equations with three unknowns.
The pointer "▬" appears below "2: 3-VLE".

Statistic mode: [MODE] [3]
Used to perform statistical calculations.
The pointer "▬" appears below "3: STAT".

When executing mode selection, temporary memories, statistical data and last answer memory will be cleared even when reselecting the same mode.

Selecting the Display Notation and Decimal Places

The calculator has four display notation systems for displaying calculation results. When FIX, SCI, or ENG symbol is displayed, the number of decimal places can be set to any value between 0 and 9. Displayed values will be reduced to the corresponding number of digits.

100000÷3=		
[Floating point]	ON/C 100000 ÷ 3 =	33333.33333
→[FIXed decimal point]	2ndF FSE	33333.33333
[TAB set to 2]	2ndF TAB 2	33333.33
→[SCIentific notation]	2ndF FSE	3.33×10^{4}
→[ENGineering notation]	2ndF FSE	33.33×10^{3}
→[Floating point]	2ndF FSE	33333.33333

- If the value for floating point system does not fit in the following range, the calculator will display the result using scientific notation system:
  $0.000000001 \leq |x| \leq 9999999999$

Determination of the Angular Unit

In this calculator, the following three angular units can be specified.

SCIENTIFIC CALCULATIONS

- Press MODE 0 to select the normal mode.
- In each example, press ON/C to clear the display.
- If the FIX, SCI, or ENG indicator is displayed, clear the indicator by pressing 2ndF FSE.

Arithmetic Operations

45+285÷3=	ON/C 45 + 285 ÷ 3 =	***140.***
$\frac{18+6}{15-8}$ =	(18 + 6) ÷ (15 − 8 = *1	***3.428571429***
42×(−5)+120=	42 × 5 +/− + 120 = *2 (+/− 5) *2	***−90.***
$(5\times10^{3})\div(4\times10^{-3})$=	5 Exp 3 ÷ 4 Exp 3 +/− =	***1250000.***

*1 The closing parenthesis) just before = or M+ may be omitted.

Functions

- Before starting calculations, specify the angular unit.

sin60[°]=	ON/C sin 60 =	***0.866025403***
$\cos\frac{\pi}{4}$[rad]=	DRG cos (2ndF π ÷ 4) =	***0.707106781***
$\tan^{-1}1$=[g]	DRG 2ndF tan⁻¹ 1 = DRG	***50.***

- The results of inverse trigonometric functions are displayed within the following range:

	$\theta = \sin^{-1}x$, $\theta = \tan^{-1}x$	$\theta = \cos^{-1}x$
DEG	$-90 \leq \theta \leq 90$	$0 \leq \theta \leq 180$
RAD	$-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$	$0 \leq \theta \leq \pi$
GRAD	$-100 \leq \theta \leq 100$	$0 \leq \theta \leq 200$

(cosh 1.5 + sinh 1.5)² =	ON/C (hyp cos 1.5 + hyp sin 1.5) x^2 =	***20.08553692***
$\tanh^{-1}\frac{5}{7}$ =	2ndF arc hyp tan (5 ÷ 7) =	***0.895879734***
ln 20 =	ln 20 =	***2.995732274***
log 50 =	log 50 =	***1.698970004***
e^{3} =	2ndF e^x 3 =	***20.08553692***
$10^{1.7}$ =	2ndF 10^x 1.7 =	***50.11872336***
$\frac{1}{6}+\frac{1}{7}$=	6 2ndF x^{-1} + 7 2ndF x^{-1} =	***0.309523809***
$8^{-2}-3^{4}\times5^{2}$ =	8 y^x 2 +/− − 3 y^x 4 × 5 x^2 =	***−2024.984375***
$(12^{3})^{\frac{1}{4}}$=	12 y^x 3 y^x 4 2ndF x^{-1} =	***6.447419591***
$\sqrt{49}-\sqrt[4]{81}$ =	√ 49 − 4 2ndF $\sqrt[x]{}$ 81 =	***4.***
$\sqrt[3]{27}$ =	2ndF ∛ 27 =	***3.***
4! =	4 2ndF n! =	***24.***
${}_{10}P_3$ =	10 2ndF nPr 3 =	***720.***
${}_{5}C_2$ =	5 2ndF nCr 2 =	***10.***
500×25%=	500 × 25 %	***125.***
120÷400=?%	120 ÷ 400 %	***30.***
500+(500×25%)=	500 + 25 %	***625.***
400−(400×30%)=	400 − 30 %	***280.***

Random Numbers

A pseudo-random number with three significant digits can be generated by pressing 2ndF RANDOM =.
To generate the next random number, press =.
This function can be performed in the normal and statistics modes. (This function is not supported under the N-Base function.)

- Random numbers use memory Y. Each random number is generated on the basis of the value stored in memory Y (pseudo-random number series).
- To generate a new series of pseudo-random numbers, press ON/C STO Y to clear the memory Y.

Angular Unit Conversions

90°→ [rad]	ON/C 90 2ndF DRG▸	***1.570796327***
→ [g]	2ndF DRG▸	***100.***
→ [°]	2ndF DRG▸	***90.***
$\sin^{-1}0.8$ = [°]	2ndF sin⁻¹ 0.8 =	***53.13010235***
→ [rad]	2ndF DRG▸	***0.927295218***
→ [g]	2ndF DRG▸	***59.03344706***
→ [°]	2ndF DRG▸	***53.13010235***

Memory Calculations

The calculator has six temporary memories (A-D, X and Y), one independent memory (M) and one last answer memory (ANS).

Mode	ANS	M	A-D, X,Y
Normal	○	○	○
Complex	○	○	×
3-VLE	×	×	×
Statistic	○	×	×

○ : Available × : Unavailable

[Temporary memories (A-D, X and Y)]
A stored value can be recalled as a value or variable to be used in equations.

- In case an infinite decimal is stored in the memory, it can be recalled as a variable to obtain accurate answers.

Ex.)	1 ÷ 3 STO Y	(0.3333...is stored to Y)
	3 × RCL Y =	***0.999999999***
	3 × 2ndF ALPHA Y =	***1.***

[Independent memory (M)]
In addition to all the features of temporary memories, a value can be added to or subtracted from an existing memory value.
Press ON/C STO M to clear the independent memory.

[Last answer memory (ANS)]
The calculation result obtained by pressing = or any other calculation ending instruction is automatically stored in the last answer memory.

Note:
Calculation results of the functions indicated below are automatically stored in memories X or Y; preexisting contents of X or Y will be overwritten.

- Random numbers ..... Y memory
- →rθ, →xy ..... X memory, Y memory

Temporary memories and last answer memory are cleared even when the same mode is reselected.

	ON/C 8 × 2 STO M	***16.***
24÷(8×2)=	24 ÷ RCL M =	***1.5***
(8×2)×5=	RCL M × 5 =	***80.***
	ON/C STO M	***0.***
23+45+78=	23 + 45 + 78 M+	***146.***
+)52-31+43=	52 − 31 + 43 M+	***64.***
−)64+73-12=	64 + 73 − 12 2ndF M−	***125.***
(A)	RCL M	***85.***
$1= ¥140	140 STO Y	***140.***
¥33,775=$?	33775 ÷ RCL Y =	***241.25***
$2,750=¥?	2750 × RCL Y =	***385000.***
r=3cm	3 STO Y	***3.***
πr^2=?	2ndF π 2ndF ALPHA Y *	
(r → Y)	x^2 =	***28.27433388***

$\frac{24}{4+6}$ = 2.4...(A)	24 [÷] [(] 4 [+] 6 [)] [=]	***2.4***
3×(A)+60÷(A)=	3 [×] [2ndF] [ANS] [+] 60 [÷] [2ndF] [ANS] [=]	***32.2***

* Entry of the multiplication procedure is omitted between "π" and a variable.

Chain Calculations

While performing the four basic arithmetic operations, the result can be used in the subsequent arithmetic operation.

6+4=ANS	[ON/C] 6 [+] 4 [=]	***10.***
ANS+5	[+] 5 [=]	***15.***

The previous calculation result will not be recalled after entering multiple instructions.

Fraction Calculations

[a b/c] : Used to enter a fraction or to convert numbers.

[2ndF] [d/c]: Used to convert numbers.

- A decimal number, variable, or exponent cannot be entered as a fraction.
- In all cases, a total of up to 10 digits including integer, numerator, denominator and the symbol (⌟) can be entered.
- If the number of digits to be displayed is greater than 10, the number is converted to and displayed as a decimal number.

$3\frac{1}{2}+\frac{4}{3}=[a\frac{b}{c}]$	[ON/C] 3 [a b/c] 1 [a b/c] 2 [+] 4 [a b/c] 3 [=]	***4⌟5⌟6****
→[a.xxx]	[a b/c]	***4.833333333***
→[d/c]	[2ndF] [d/c]	***29⌟6***
$10^{\frac{2}{3}}$ =	[2ndF] [10^x] 2 [a b/c] 3 [=]	***4.641588834***
$1.25+\frac{2}{5}=[a\frac{b}{c}]$	1.25 [+] 2 [a b/c] 5 [=]	***1.65***
→[a b/c]	[a b/c]	***1⌟13⌟20***

* *4⌟5⌟6*=$4\frac{5}{6}$

Binary, Octal, Decimal, and Hexadecimal Operations (N-Base)

This calculator can perform conversions between numbers expressed in binary, octal, decimal and hexadecimal systems. It can also perform the four basic arithmetic operations, calculations with parentheses and memory calculations using binary, octal, decimal, and hexadecimal numbers. In addition, the calculator can carry out the logical operations AND, OR, NOT, NEG, XOR and XNOR on binary, octal and hexadecimal numbers.
Conversion to each system is performed by the following keys:

[2ndF] [→BIN]: Converts to the binary system. "b" appears.

[2ndF] [→OCT]: Converts to the octal system. "o" appears.

[2ndF] [→HEX]: Converts to the hexadecimal system. "H" appears.

[2ndF] [→DEC]: Converts to the decimal system. "b", "o", and "H" disappear from the display.

Conversion is performed on the displayed value when these keys are pressed.

Note: In this calculator, the hexadecimal numbers A – F are entered by pressing [y^x] (A), [$\sqrt{\ }$] (B), [x^2] (C), [log] (D), [ln] (E), and [CNST] (F), and displayed as follows:

A → R, B → b, C → ℓ, D → d, E → ℰ, F → F

In the binary, octal, and hexadecimal systems, fractional parts cannot be entered. When a decimal number having a fractional part is converted into a binary, octal, or hexadecimal number, the fractional part will be truncated. Likewise, when the result of a binary, octal, or hexadecimal calculation includes a fractional part, the fractional part will be truncated. In the binary, octal, and hexadecimal systems, negative numbers are displayed as a complement.

DEC(25)→BIN	[ON/C] [2ndF] [→DEC] 25 [2ndF] [→BIN]	***11001.***b
HEX(1AC)	[2ndF] [→HEX] 1AC	***1AC.***H
→ BIN	[2ndF] [→BIN]	***110101100.***b
→ OCT	[2ndF] [→OCT]	***654.***0
→ DEC	[2ndF] [→DEC]	***428.***
BIN	[2ndF] [→BIN] [(] 1010 [−] 100 [)]	
(1010–100)×11 =	[×] 11 [=]	***10010.***b
BIN(111)→NEG	[NEG] 111 [=]	***1111111001.***b

HEX(1FF)+ OCT(512)= HEX(?)	[2ndF] [→HEX] 1FF [2ndF] [→OCT] [+] 512 [=] [2ndF] [→HEX]	***1511.***0 ***349.***H
2FEC– 2C9E=(A)	[ON/C] [STO] [M] [2ndF] [→HEX] 2FEC [−] 2C9E [M+]	***34E.***H
+)2000– 1901=(B)	2000 [−] 1901 [M+]	***6FF.***H
(C)	[RCL] [M]	***A4d.***H
1011 AND 101 = (BIN)	[ON/C] [2ndF] [→BIN] 1011 [AND] 101 [=]	***1.***b
5A OR C3 = (HEX)	[2ndF] [→HEX] 5A [OR] C3 [=]	***db.***H
NOT 10110 = (BIN)	[2ndF] [→BIN] [NOT] 10110 [=]	***1111101001.***b
24 XOR 4 = (OCT)	[2ndF] [→OCT] 24 [XOR] 4 [=]	***20.***0
B3 XNOR 2D = (HEX)	[2ndF] [→HEX] B3 [XNOR] 2D [=]	***FFFFFFF61.***H
→ DEC	[2ndF] [→DEC]	***–159.***

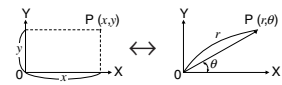
Time, Decimal and Sexagesimal Calculations

Conversion between decimal and sexagesimal numbers can be performed. In addition, the four basic arithmetic operations and memory calculations can be carried out using the sexagesimal system.

12°39'18"05 → [10]	[ON/C] 12 [D°M'S] 39 [D°M'S] 18 [D°M'S] 5 [2ndF] [↔DEG]	***12.65501389***
123.678 → [60]	123.678 [2ndF] [↔DEG]	***123°40'40.80***
3h30m45s + 6h45m36s = [60]	3 [D°M'S] 30 [D°M'S] 45 [+] 6 [D°M'S] 45 [D°M'S] 36 [=]	***10°16'21.00***
3h45m – 1.69h = [60]	3 [D°M'S] 45 [−] 1.69 [=] [2ndF] [↔DEG]	***2°03'36.00***
sin62°12'24" = [10]	[sin] 62 [D°M'S] 12 [D°M'S] 24 [=]	***0.884635235***

Coordinate Conversions

- Before performing a calculation, select the angular unit.



Rectangular coord. Polar coord.

- The calculation result is automatically stored in memories X and Y.
  Value of r or x: X memory
  Value of θ or y: Y memory

$\begin{pmatrix} x=6 \\ y=4 \end{pmatrix} \rightarrow \begin{pmatrix} r= \\ \theta=[°] \end{pmatrix}$	[ON/C] 6 [2ndF] [,] 4 [2ndF] [→rθ] [r]	***7.211102551***
	[→] [θ]	***33.69006753***
	[←] [r]	***7.211102551***
$\begin{pmatrix} r=14 \\ \theta=36[°] \end{pmatrix} \rightarrow \begin{pmatrix} x= \\ y= \end{pmatrix}$	14 [2ndF] [,] 36 [2ndF] [→xy] [x]	***11.32623792***
	[→] [y]	***8.228993532***
	[←] [x]	***11.32623792***

Calculations Using Physical Constants

A constant is recalled by pressing [CNST] followed by the number of the physical constant. Each physical constant must be specified with a 2-digit number. For example, speed of light in a vacuum should be designated as "01".

The recalled constant appears in the display mode selected with the designated number of decimal places.

Physical constants can be recalled in the normal mode (when not set to binary, octal, or hexadecimal), 3-VLE mode, or statistics mode.

Note: Physical constants and metric conversions are based either on the 1986 values released by the Committee on Data for Science and Technology (CODATA) of ICSU (International Council of Scientific Unions) or on ISO specifications.

No.	Constant	Symbol	Unit
01	Speed of light in vacuum	c	$m \cdot s^{-1}$
02	Gravitational constant	G	$N \cdot m^2 \cdot kg^{-2}$
03	Gravitational acceleration	g	$m \cdot s^{-2}$
04	Electron mass	m_e	kg
05	Proton mass	m_p	kg
06	Neutron mass	m_n	kg
07	Muon rest mass	$m\mu$	kg
08	Atomic mass unit	u	kg
09	Electron charge	e	C
10	Planck's constant	h	$J \cdot s$

No.	Constant	Symbol	Unit
11	Boltzmann constant	k	$J•K^{-1}$
12	Magnetic permeability	μ_0	$H•m^{-1}$
13	Dielectric permittivity	ε_0	$F•m^{-1}$
14	Classical electron radius	r_e	m
15	Fine structure constant	α	
16	Bohr radius	a_0	m
17	Rydberg constant	R_∞	m^{-1}
18	Fluxoid quantum	Φ_0	Wb
19	Bohr magneton	μ_B	$J•T^{-1}$
20	Electron magnetic moment	μ_e	$J•T^{-1}$
21	Nuclear magneton	μ_N	$J•T^{-1}$
22	Proton magnetic moment	μ_P	$J•T^{-1}$
23	Neutron magnetic moment	μ_n	$J•T^{-1}$
24	Muon magnetic moment	μ_μ	$J•T^{-1}$
25	Compton wavelength of the electron	λ_C	m
26	Compton wavelength of the proton	λ_{CP}	m
27	Stefan-Boltzmann constant	σ	$W•m^{-2}•K^{-4}$
28	Avogadro's constant	N_A	mol^{-1}
29	Ideal gas volume at STP	V_m	$m^3•mol^{-1}$
30	Gas constant	R	$J•mol^{-1}•K^{-1}$
31	Faraday constant	F	$C•mol^{-1}$
32	Quantum Hall resistance	R_H	Ω
33	Electron charge to mass ratio	e/m_e	$C•kg^{-1}$
34	Quantum of circulation	$h/2m_e$	$J•s•kg^{-1}$
35	Gyromagnetic ratio of proton	γ_p	$s^{-1}•T^{-1}$
36	Josephson frequency-voltage ratio	$2e/h$	$Hz•V^{-1}$
37	Electron volt	eV	J
38	Celsius Temperature (0°C)	t	K
39	Astronomical unit	AU	m
40	Parsec	pc	m

V_0 = 15.3m/s
t = 10s
$V_0t + \frac{1}{2}gt^2$ = ?m

15.3 [×] 10 [+] 2 [2ndF] [x^{-1}] [×] [CNST] [0] [3] [×] 10 [x^2] [=] ***643.3325***

Metric Conversions

Unit conversions can be performed in the normal (when not set to binary, octal, or hexadecimal), 3-VLE and statistics modes.

No.	Conversion units	Remarks
1	in → cm	in : inch
2	cm → in	cm : centimeter
3	ft → m	ft : foot
4	m → ft	m : meter
5	yd → m	yd : yard
6	m → yd	m : meter
7	mile → km	mile : mile
8	km → mile	km : kilometer
9	n mile → m	n mile : nautical mile
10	m → n mile	m : meter
11	acre → m^2	acre : acre
12	m^2 → acre	m^2 : square meter
13	oz → g	oz : ounce
14	g → oz	g : gram
15	lb → kg	lb : pound
16	kg → lb	kg : kilogram
17	°F → °C	°F : Degree Fahrenheit
18	°C → °F	°C : Degree Celsius
19	gal (US) → ℓ	gal (US) : gallon (US)
20	ℓ → gal(US)	ℓ : liter
21	gal (UK) → ℓ	gal (UK) : gallon (UK)
22	ℓ → gal(UK)	ℓ : liter
23	fl oz (US) → mℓ	fl oz(US): fluid ounce(US)
24	mℓ → fl oz (US)	mℓ : milliliter
25	fl oz (UK) → mℓ	fl oz(UK): fluid ounce(UK)
26	mℓ → fl oz (UK)	mℓ : milliliter
27	J → cal	J : Joule
28	cal → J	cal : calorie
29	hp → kW	hp : horsepower
30	kW → hp	kW : kilowatt
31	ps → kW	ps : French horsepower
32	kW → ps	kW : kilowatt
33	kgf/cm^2 → Pa	
34	Pa → kgf/cm^2	Pa : Pascal
35	atm → Pa	atm : atmosphere
36	Pa → atm	Pa : Pascal
37	mmHg → Pa	(1 mmHg = 1 Torr)
38	Pa → mmHg	Pa : Pascal
39	kgf·m → J	
40	J →kgf·m	J : Joule

125yd = ?m

125 [2ndF] [CONV] 5 [=] ***114.3***

Modify Function

In this calculator, all calculation results are internally obtained in scientific notation with up to 12 digits for the mantissa.
However, since calculation results are displayed in the form designated by the display notation and the number of decimal places indicated, the internal calculation result may differ from that shown in the display.
By using the modify function, the internal value is converted to match that of the display, so that the displayed value can be used without change in subsequent operations.

5÷9=ANS
ANS×9=
[FIX,TAB=1]

[ON/C] [2ndF] [FSE] [2ndF] [TAB] 1
5 [÷] 9 [=] ***0.6***
[×] 9 [=]*1 ***5.0***
5 [÷] 9 [=] [2ndF] [MDF] ***0.6***
[×] 9 [=]*2 ***5.4***
[2ndF] [FSE] [2ndF] [FSE] [2ndF] [FSE]

*1 5.55555555555×10^{-1}×9
*2 0.6×9

SIMULATION CALCULATION

To obtain a result consecutively using the same formula, such as plotting a curve line for $2x^2 + 1$, or finding the variable for $2x + 2y = 14$, simply specify a new value for each variable in the formula.

Usable variables: A-D, M, X and Y
Unusable functions: RANDOM

- Simulation calculations can only be executed in the normal mode.
- Calculation ending instructions (%, etc.) other than [=] cannot be used.

Performing Calculations

① Press [MODE] [0].
② Enter a formula with at least one variable.
③ Press [2ndF] [ALGB].
④ Variable input screen will appear. Enter the value of the flashing variable, then press [ENT] to confirm. The calculation result will be displayed after entering the value for all used variables.
- Only numerical values are allowed as variables. Entry of formulas are not permitted.
- Upon completing the calculation, press [2ndF] [ALGB] to perform calculations using the same formula.
- Variables and numerical values stored in the memories will be displayed in the variable input screen. To change a numerical value, enter the new value and press [ENT].

$f(x) = x^3 - 3x^2 + 2$

[MODE] [0]
[2ndF] [ALPHA] [X] [y^x] 3 [−] 3 [2ndF] [ALPHA] [X] [x^2] [+] 2 [2ndF] [ALGB]

$x = -1$
1 [+/−] [ENT] ***–2.***

$x = -0.5$
[2ndF] [ALGB] 0.5 [+/−] [ENT] ***1.125***

$\sqrt{A^2+B^2}$

[√] [(] [2ndF] [ALPHA] [A] [x^2] [+] [2ndF] [ALPHA] [B] [x^2] [)] [2ndF] [ALGB]

A = 2, B = 3
2 [ENT] 3 [ENT] ***3.605551275***

A = 2, B = 5
[2ndF] [ALGB] [ENT] 5 [ENT] ***5.385164807***

COMPLEX NUMBER CALCULATIONS

To carry out addition, subtraction, multiplication, and division using complex numbers, press [MODE] [1] to select the complex number mode.
There are two modes of expression of the results of complex number calculations.

① Rectangular coordinate mode. (xy appears on the display.)
[2ndF] [→xy]

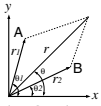
② Polar coordinate mode. ($r\theta$ appears on the display.)
[2ndF] [→$r\theta$]

Complex number entry

① Rectangular coordinates
x-coordinate [+] *y-coordinate* [i]
or *x-coordinate* [+] [i] *y-coordinate*

② Polar coordinates
r [∠] θ
r: absolute value
θ: argument

- Upon changing to another mode, the imaginary portion of any complex number stored in the independent memory (M) will be cleared.
- A complex number expressed in rectangular coordinates with the y-value equal to zero, or expressed in polar coordinates with the angle equal to zero, is treated as a real number.

$(12-6i)+(7+15i)$	[MODE] [1] 12 [−] 6 [i] [+] 7 [+] 15 [i]	
$-(11+4i)=$	[−] [(] 11 [+] 4 [i] [)] [=] [x]	***8.***
	[⟶] [y]	+ ***5.*** i
	[⟵] [x]	***8.***
$6\times(7-9i)\times$	6 [×] [(] 7 [−] 9 [i] [)] [×]	
$(-5+8i)=$	[(] 5 [+/−] [+] 8 [i] [)] [=] [x]	***222.***
	[⟶] [y]	+ ***606.*** i
$16\times(\sin 30°+$	16 [×] [(] [sin] 30 [+] [i] [cos] 30 [)]	
$i\cos 30°)\div(\sin 60°+$	[÷] [(] [sin] 60 [+] [i] [cos] 60	
$i\cos 60°)=$	[)] [=] [x]	***13.85640646***
	[⟶] [y]	+ ***8.*** i
	[2ndF] [→$r\theta$] 8 [∠] 70 [+] 12 [∠] 25	
	[=] [r]	***18.5408873***
	[⟶] [θ]	∠ ***42.76427608***

$r1 = 8, \theta 1 = 70°$
$r2 = 12, \theta 2 = 25°$
↓
$r = ?, \theta = ?°$

$(1+i)$	[2ndF] [→xy] 1 [+] [i] [=]	***1.***
↓	[2ndF] [→$r\theta$] [r]	***1.414213562***
$r = ?, \theta = ?°$	[⟶] [θ]	∠ ***45.***
	[2ndF] [→xy] [(] 2 [−] 3 [i] [)] [x^2]	
$(2-3i)^2=$	[=] [x]	***−5.***
	[⟶] [y]	− ***12.*** i
$\frac{1}{1+i}=$	[(] 1 [+] [i] [)] [2ndF] [x^{-1}] [=] [x]	***0.5***
	[⟶] [y]	− ***0.5*** i

SIMULTANEOUS LINEAR EQUATIONS WITH THREE UNKNOWNS

To solve simultaneous linear equations with three unknowns, press [MODE] [2] to select the 3-VLE mode.

Simultaneous Linear Equations with Three Unknowns:

$$\begin{bmatrix} a_1x + b_1y + c_1z = d_1 \\ a_2x + b_2y + c_2z = d_2 \\ a_3x + b_3y + c_3z = d_3 \end{bmatrix} \qquad |\mathrm{D}| = \begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix}$$

Notes:
- If the determinant D = 0, an error occurs.
- If the absolute value of an intermediate result or calculation result is 1×10^{100} or more, an error occurs.

Performing Calculations

① Press [MODE] [2].
② Enter each coefficient from a_1 to d_3 followed by [ENT], as prompted on the display.
③ Upon pressing [ENT] after entering d_3, the solution for x will be displayed. Subsequent pressing will cycle through the values of y, z and the determinant D.

- Coefficients can be entered using ordinary arithmetic operations.
- To clear the entered coefficients, press [2ndF] [CA].

Note: Pressing [ENT] when the determinant D is in the display recalls the coefficients. Each time [ENT] is pressed, a coefficient is displayed in the order of input, allowing the entered coefficients to be verified. (by pressing [2ndF] [ENT] or [2ndF] [↶], coefficients are displayed in reverse order.)

To correct a particular coefficient being displayed, enter the correct value and then press [ENT].

	[MODE] [2]	
$\begin{cases} x+y-z=9 \\ 6x+6y-z=17 \\ 14x-7y+2z=42 \end{cases}$	1 [ENT] 1 [ENT] 1 [+/−] [ENT] 9 [ENT] 6 [ENT] 6 [ENT] 1 [+/−] [ENT] 17 [ENT] 14 [ENT] 7 [+/−] [ENT] 2 [ENT] 42	
$x = ?$	[ENT] [x]	***3.238095238***
$y = ?$	[ENT] [y]	***−1.638095238***
$z = ?$	[ENT] [z]	***−7.4***
det(D) = ?	[ENT] [det(D)]	***105.***

If the coefficients c_1, c_2 and c_3 as well as $a_3 - d_3$ are set to zero, the problem is treated as a 2-dimensional simultaneous equation. The x and y values as well as the determinant can be retrieved.

$\begin{cases} 2x+3y=4 \\ 5x+6y=7 \end{cases}$	[2ndF] [CA] 2 [ENT] 3 [ENT] [ENT] 4 [ENT] 5 [ENT] 6 [ENT] [ENT] 7 [ENT]	
$x = ?$	[ENT] [ENT] [ENT] [ENT] [x]	***−1.***
$y = ?$	[ENT] [y]	***2.***
det(D) = ?	[ENT] [det(D)]	***−3.***

STATISTICAL CALCULATIONS

Statistical calculations are performed in the statistics mode.
Press [MODE] [3] to select the statistics mode.
This calculator performs the seven statistical calculations indicated below. After selecting the statistics mode, select the desired submode by pressing the number key corresponding to your choice.

When changing to the statistical submode, press the corresponding number key after performing the operation to select the statistics mode (press [MODE] [3]).

[0] (STAT 0) : Single-variable statistics
[1] (STAT 1) : Linear regression calculation
[2] (STAT 2) : Quadratic regression calculation
[3] (STAT 3) : Exponential regression calculation
[4] (STAT 4) : Logarithmic regression calculation
[5] (STAT 5) : Power regression calculation
[6] (STAT 6) : Inverse regression calculation

The following statistics can be obtained for each statistical calculation (refer to the table below):

Single-variable statistical calculation:
Statistics of ① and value of the normal probability function

Linear regression calculation:
Statistics of ① and ② and, in addition, estimate of y for a given x (estimate y') and estimate of x for a given y (estimate x')

Exponential regression, Logarithmic regression, power regression, and inverse regression calculation:
Statistics of ① and ②. In addition, estimate of y for a given x and estimate of x for a given y. (Since the calculator converts each formula into a linear regression formula before actual calculation takes place, it obtains all statistics, except coefficients a and b, from converted data rather than entered data.)

Quadratic regression calculation:
Statistics of ① and ② and coefficients a, b, c in the quadratic regression formula ($y = a + bx + cx^2$). (For quadratic regression calculations, no correlation coefficient (r) can be obtained.)

When performing calculations using a, b and c, only one numeric value can be held.

①	$\bar{x}$	Mean of samples (x data)
	sx	Sample standard deviation (x data)
	σx	Population standard deviation (x data)
	n	Number of samples
	Σx	Sum of samples (x data)
	Σx^2	Sum of squares of samples (x data)
②	$\bar{y}$	Means of samples (y data)
	sy	Sample standard deviation (y data)
	σy	Population standard deviation (y data)
	Σy	Sum of samples (y data)
	Σy^2	Sum of squares of samples (y data)
	Σxy	Sum of products of samples (x, y)
	r	Correlation coefficient
	a	Coefficient of regression equation
	b	Coefficient of regression equation
	c	Coefficient of quadratic regression equation

Entered data are kept in memory until [2ndF] [CA] or [MODE] [3] are pressed. Before entering new data, clear the memory contents.

[Data Entry]
Single-variable data
Data [DATA]
Data [(x,y)] *frequency* [DATA] (To enter multiples of the same data)
Two-variable data
Data x [(x,y)] *Data y* [DATA]
Data x [(x,y)] *Data y* [(x,y)] *frequency* [DATA] (To enter multiples of the same data x and y.)

[Data Correction]
Correction prior to pressing [DATA]:
Delete incorrect data with [ON/C].
Correction after pressing [DATA]:
If nothing else but [DATA] is entered, press [2ndF] [CD] to delete, then enter the correct value.

Single variable Statistical Calculations

Score
95
80
80
75
75
75
50

	[MODE] [3] [0]	***0.***
	95 [DATA]	***1.***
	80 [DATA]	***2.***
	[DATA]	***3.***
	75 [(x,y)] 3 [DATA]	***6.***
	50 [DATA]	***7.***
$\bar{x}$=	[RCL] [$\bar{x}$]	***75.71428571***
σx=	[RCL] [σx]	***12.37179148***
Σx=	[RCL] [Σx]	***530.***
Σx^2=	[RCL] [Σx^2]	***41200.***
sx=	[RCL] [S.x]	***13.3630621***
sx^2=	[x^2] [=]	***178.5714286***
x = 60 → P(t) ?	[2ndF] [P(t)] 60 [2ndF] [$x\rightarrow$t] [)] [=]	***0.102012***
t = –0.5 → R(t) ?	[2ndF] [R(t)] 0.5 [+/–] [)] [=]	***0.691463***

Regression Calculations

Given the two variable sample data (x,y), determine the standard deviation of data sets x and y; the coefficients of the linear regression equation, and the correlation coefficient between x and y.
(Exponential, logarithmic, power, and inverse regression can also be calculated in much the same way as linear regression.)

x	y
2	5
2	5
12	24
21	40
21	40
21	40
15	25

	[MODE] [3] [1]	***0.***
	2 [(x,y)] 5 [DATA]	***1.***
	[DATA]	***2.***
	12 [(x,y)] 24 [DATA]	***3.***
	21 [(x,y)] 40 [(x,y)] 3 [DATA]	***6.***
	15 [(x,y)] 25 [DATA]	***7.***
	[RCL] [a]	***1.050261097***
	[RCL] [b]	***1.826044386***
	[RCL] [r]	***0.995176343***
	[RCL] [S.x]	***8.541216597***
	[RCL] [S.y]	***15.67223812***

The following values are estimated:

x=3 → y'=?	3 [2ndF] [y']	***6.528394256***
y=46 → x'=?	46 [2ndF] [x']	***24.61590706***

Quadratic Regression Calculation

Given the sample data shown, determine the coefficients a, b, and c of the quadratic regression equation and estimate the following values:

x	y
12	41
8	13
5	2
23	200
15	71

	[MODE] [3] [2]	***0.***
	12 [(x,y)] 41 [DATA]	***1.***
	8 [(x,y)] 13 [DATA]	***2.***
	5 [(x,y)] 2 [DATA]	***3.***
	23 [(x,y)] 200 [DATA]	***4.***
	15 [(x,y)] 71 [DATA]	***5.***
	[RCL] [a]	***5.357506761***
	[RCL] [b]	***–3.120289663***
	[RCL] [c]	***0.503334057***
x=10→y'=?	10 [2ndF] [y']	***24.4880159***
y=22→x'=?	22 [2ndF] [x']	***9.63201409***
	[⟶]*	***–3.432772026***
	[⟵]	***9.63201409***

* When there are two x values.

Statistical Calculation Formulas

Type	Regression formula
Linear	$y = a + bx$
Exponential	$y = a \cdot e^{bx}$
Logarithmic	$y = a + b \cdot \ln x$
Power	$y = a \cdot x^b$
Inverse	$y = a + b\frac{1}{x}$
Quadratic	$y = a + bx + cx^2$

$$\bar{x} = \frac{\Sigma x}{n} \qquad \sigma x = \sqrt{\frac{\Sigma x^2 - n\bar{x}^2}{n}}$$

$$sx = \sqrt{\frac{\Sigma x^2 - n\bar{x}^2}{n-1}}$$

$\Sigma x = x_1 + x_2 + \cdots + x_n$
$\Sigma x^2 = x_1^2 + x_2^2 + \cdots + x_n^2$

$$\bar{y} = \frac{\Sigma y}{n} \qquad \sigma y = \sqrt{\frac{\Sigma y^2 - n\bar{y}^2}{n}}$$

$$sy = \sqrt{\frac{\Sigma y^2 - n\bar{y}^2}{n-1}}$$

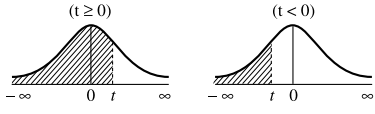
$\Sigma xy = x_1y_1 + x_2y_2 + \cdots + x_ny_n$
$\Sigma y = y_1 + y_2 + \cdots + y_n$
$\Sigma y^2 = y_1^2 + y_2^2 + \cdots + y_n^2$

(n: Number of samples)

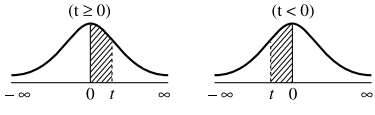
In the statistical calculation formulas, an error will occur when:
- the absolute value of the intermediate result or calculation result is equal to or greater than 1×10^{100}.
- the denominator is zero.
- an attempt is made to take the square root of a negative number.
- no solution exists in the quadratic regression calculation.

[Normal Probability Calculations]

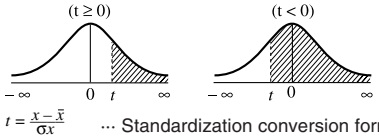
$$P(t) = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{t} e^{-\frac{x^2}{2}}\,dx$$



$$Q(t) = \frac{1}{\sqrt{2\pi}}\int_{0}^{t} e^{-\frac{x^2}{2}}\,dx$$



$$R(t) = \frac{1}{\sqrt{2\pi}}\int_{t}^{\infty} e^{-\frac{x^2}{2}}\,dx$$



$t = \frac{x - \bar{x}}{\sigma x}$ ··· Standardization conversion formula

* P(t), Q(t), and R(t) will always take positive values, even when t<0, because these functions follow the same principle used when solving for an area.
Values for P(t), Q(t), and R(t) are given to six decimal places.

ERROR AND CALCULATION RANGES

Errors

An error will occur if an operation exceeds the calculation ranges, or if a mathematically illegal operation is attempted. When an error occurs, pressing [◄] (or [►]) automatically moves the cursor back to the place in the equation where the error occurred. Edit the equation or press [ON/C] to clear the equation.

Error Codes and Error Types

Syntax error (Error 1):
- An attempt was made to perform an invalid operation.
  Ex. 2 [+] [−] 5 [=]

Calculation error (Error 2):
- The absolute value of an intermediate or final calculation result equals or exceeds 10^{100}.
- An attempt was made to divide by 0.
- The calculation ranges were exceeded while performing calculations.

Depth error (Error 3):
- The available number of buffers was exceeded. (There are 8 buffers* for numeric values and 16 buffers for calculation instructions).
  *4 buffers in STAT and the complex number mode.

Equation too long (Error 4):
- The equation exceeded its maximum input buffer (159 characters). An equation must be shorter than 159 characters.

Calculation Ranges

- **Within the ranges specified below, this calculator is accurate to ±1 in the least significant digit of the mantissa. However, a calculation error increases in continuous calculations due to accumulation of each calculation error. (This is the same for y^x, $\sqrt[x]{y}$, n!, e^x, ln, etc. where continuous calculations are performed internally.)**
  Additionally, a calculation error will accumulate and become larger in the vicinity of inflection points and singular points of functions. (for example, calculating sinh x or tanh x at $x = 0$)
- Calculation ranges
  $\pm 10^{-99} \sim \pm 9.999999999 \times 10^{99}$ and 0.

If the absolute value of an entry or a final or intermediate result of a calculation is less than 10^{-99}, the value is considered to be 0 in calculations and in the display.

Function	Dynamic range
sin x, cos x, tan x	DEG: $\lvert x \rvert < 4.5 \times 10^{10}$ (tan x : $\lvert x \rvert \neq 90\ (2n-1))$* RAD: $\lvert x \rvert < \frac{\pi}{40} \times 10^{10}$ (tan x : $\lvert x \rvert \neq \frac{\pi}{2}\ (2n-1))$* GRAD: $\lvert x \rvert < 5 \times 10^{10}$ (tan x : $\lvert x \rvert \neq 100\ (2n-1))$*
$\sin^{-1}x$, $\cos^{-1}x$	$\lvert x \rvert \leq 1$
$\tan^{-1}x$, $\sqrt[3]{x}$	$\lvert x \rvert < 10^{100}$
ln x, log x	$10^{-99} \leq x < 10^{100}$
y^x	• $y > 0$: $-10^{100} < x \ln y \leq 230.2585092$ • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = n\ (0 < \lvert x \rvert < 1 : \frac{1}{x} = 2n-1, x \neq 0)$*, $-10^{100} < x \ln \lvert y \rvert \leq 230.2585092$
$\sqrt[x]{y}$	• $y > 0$: $-10^{100} < \frac{1}{x} \ln y \leq 230.2585092\ (x \neq 0)$ • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = 2n-1$ $(0 < \lvert x \rvert < 1 : \frac{1}{x} = n, x \neq 0)$*, $-10^{100} < \frac{1}{x} \ln \lvert y \rvert \leq 230.2585092$
e^x	$-10^{100} < x \leq 230.2585092$
10^x	$-10^{100} < x < 100$
sinh x, cosh x	$\lvert x \rvert \leq 230.2585092$
tanh x	$\lvert x \rvert < 10^{100}$
$\sinh^{-1} x$	$\lvert x \rvert < 5 \times 10^{99}$
$\cosh^{-1} x$	$1 \leq x < 5 \times 10^{99}$
$\tanh^{-1} x$	$\lvert x \rvert < 1$
x^2	$\lvert x \rvert < 10^{50}$
$\sqrt{x}$	$0 \leq x < 10^{100}$
x^{-1}	$\lvert x \rvert < 10^{100}\ (x \neq 0)$
n!	$0 \leq n \leq 69$*
${}_nP_r$	$0 \leq r \leq n \leq 9999999999$*
${}_nC_r$	$0 \leq r \leq n \leq 9999999999$* $n - r < r$: $n - r \leq 69$ $n - r \geq r$: $r \leq 69$
↔DEG, D°M'S	0°00'00.01 ≤ | x | < 10000°
→DEC →BIN →OCT →HEX AND OR XOR XNOR	DEC : | x | ≤ 9999999999 BIN : 1000000000 ≤ x ≤ 1111111111 0 ≤ x ≤ 111111111 OCT : 4000000000 ≤ x ≤ 7777777777 0 ≤ x ≤ 3777777777 HEX : FDABF41C01 ≤ x ≤ FFFFFFFFFF 0 ≤ x ≤ 2540BE3FF
NOT	BIN : 1000000000 ≤ x ≤ 1111111111 0 ≤ x ≤ 111111111 OCT : 4000000000 ≤ x ≤ 7777777777 0 ≤ x ≤ 3777777777 HEX : FDABF41C01 ≤ x ≤ FFFFFFFFFF 0 ≤ x ≤ 2540BE3FE
NEG	BIN : 1000000001 ≤ x ≤ 1111111111 0 ≤ x ≤ 111111111 OCT : 4000000001 ≤ x ≤ 7777777777 0 ≤ x ≤ 3777777777 HEX : FDABF41C01 ≤ x ≤ FFFFFFFFFF 0 ≤ x ≤ 2540BE3FF

Function	Dynamic range
$x, y \rightarrow r, \theta$	$\lvert x \rvert, \lvert y \rvert < 10^{50}$ $\lvert \frac{y}{x} \rvert, x^2 + y^2 < 10^{100}$
$r, \theta \rightarrow x, y$	$0 \leq r < 10^{100}$ DEG: $\lvert \theta \rvert < 4.5 \times 10^{10}$ RAD: $\lvert \theta \rvert < \frac{\pi}{40} \times 10^{10}$ GRAD : $\lvert \theta \rvert < 5 \times 10^{10}$
DRG ▶	DEG→RAD, GRAD→DEG: $\lvert x \rvert < 10^{100}$ RAD→GRAD: $\lvert x \rvert < \frac{\pi}{2} \times 10^{98}$
(A+Bi)+(C+Di) (A+Bi)−(C+Di)	$\lvert A \pm C \rvert < 10^{100}$ $\lvert B \pm D \rvert < 10^{100}$
(A+Bi)×(C+Di)	$(AC - BD) < 10^{100}$ $(AD + BC) < 10^{100}$
(A+Bi)÷(C+Di)	$\frac{AC + BD}{C^2 + D^2} < 10^{100}$ $\frac{BC - AD}{C^2 + D^2} < 10^{100}$ $C^2 + D^2 \neq 0$

* (n, r: integer)

BATTERY REPLACEMENT

Notes on Battery Replacement

Improper handling of batteries can cause electrolyte leakage or explosion. Be sure to observe the following handling rules:

- Replace both batteries at the same time.
- Do not mix new and old batteries.
- Make sure the new batteries are the correct type.
- When installing, orient each battery properly as indicated in the calculator.

When to Replace the Batteries

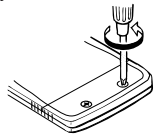
If the display has poor contrast or nothing appears on the display even when [ON/C] is pressed in dim lighting, it is time to replace the batteries.

Caution

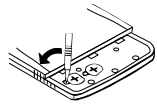
- Fluid from a leaking battery accidentally entering an eye could result in serious injury. Should this occur, wash with clean water and immediately consult a doctor.
- Should fluid from a leaking battery come into contact with your skin or clothes, immediately wash with clean water.
- If the product is not to be used for some time, to avoid damage to the unit from leaking batteries, remove them and store in a safe place.
- Do not leave exhausted batteries inside the product.
- Do not fit partially used batteries, and be sure not to mix batteries of different types.
- Keep batteries out of the reach of children.
- Exhausted batteries left in the calculator may leak and damage the calculator.
- Explosion risk may be caused by incorrect handling.
- Do not throw batteries into a fire as they may explode.

Replacement Procedure

1. Turn the power off by pressing [2ndF] [OFF].
2. Remove two battery cover screws.

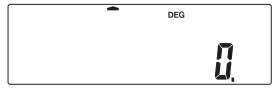


3. Slide the battery cover slightly and lift it to remove.
4. Remove the used batteries by prying them with a ball-point pen or other similar pointed device.



5. Install two new batteries. Make sure the "+" sides are faced up.
6. Replace the cover and screws.
7. Press the RESET switch (on the back).

- Make sure that the display appears as shown below.
  If the display does not appear as shown, remove the batteries, reinstall them and check the display once again.



Automatic Power Off Function

This calculator will turn itself off to save battery power if no key is pressed for approximately 10 minutes.

SPECIFICATIONS

Calculations:	Scientific calculations, complex number calculations, simultaneous linear equations with three unknowns, statistical calculations, etc.
Internal calculations:	Mantissas of up to 12 digits
Pending operations:	16 calculations 8 numeric values (4 numeric values in STAT and complex number mode)
Power source:	Built-in solar cells 3V ⎓ (DC): Backup batteries (Alkaline batteries (LR44) × 2)
Operating temperature:	0°C – 40°C (32°F – 104°F)
External dimensions:	78.6 mm (W) × 152 mm (D) × 10.5 mm (H) 3-3/32" (W) × 5-31/32" (D) × 13/32" (H)
Weight:	Approx. 78 g (0.172 lb) (Including batteries)
Accessories:	Batteries × 2 (installed), operation manual, quick reference card and hard case.